Freeform Search

Database:

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```

Term:

```
L3 and (substitut$)
```

Display: `10` Documents in **Display Format:** `KWIC` **Starting with Number** `1`

Generate: ○ **Hit List** ⊙ **Hit Count** ○ **Side by Side** ○ **Image**

[Search]   [Clear]   [Interrupt]

Search History

DATE: Tuesday, September 28, 2004   Printable Copy   Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT; PLUR=YES; OP=ADJ			
L9	L7 and L6	1	L9
L8	L7 and L7	5	L8
L7	L3 and (substitut$)	5	L7
L6	L3 and (compar$)	20	L6
L5	L1 and ((customer adj1 premise adj1 equipment$) and (cable adj1 modem)).ab.	7	L5
L4	L1 and ((customer adj1 premise adj1 equipment$) and (cable adj1 modem)).ab.	7	L4
L3	L2 and (cable adj1 modem)	48	L3
L2	L1 and (customer adj1 premise adj1 equipment$)	213	L2
L1	709/$.ccls.	16415	L1

END OF SEARCH HISTORY

h   e b   b g e e e   e f   f ffe ch

Refine Search

Search Results -

Term	Documents
REDIRECT$	0
REDIRECT	13746
REDIRECTABILITY	1
REDIRECTABLE	61
REDIRECTACK	7
REDIRECTCALL	1
REDIRECTCODON	1
REDIRECTCR	1
REDIRECTD	2
REDIRECTE	3
REDIRECTED	14942
(L1 AND (REDIRECT$ AND SUBSTITUT$).AB.).USPT.	4

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Database:
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```

Search:
```
L10
```

Refine Search

Recall Text   Clear   Interrupt

Search History

DATE: Tuesday, September 28, 2004   Printable Copy   Create Case

Set Name Query	Hit Count Set Name
side by side	result set

DB=USPT; PLUR=YES; OP=ADJ

| L10 | L1 and (redirect$ and substitut$).ab. | 4 | L10 |

h   e b   b cg b   e e ch

L9	L1 and (redirect$ with substitut$).ab.	2	L9
L8	L1 (redirect$ with substitut$)	0	L8
L7	L1 (redirect$ and substitut$).ab.	0	L7
L6	L1 (redirect$ with substitut$).ab.	0	L6
L5	L2 and redirect$	14	L5
L4	L2 and (substitut$)	6	L4
L3	L2 and (substitut$).ab.	0	L3
L2	L1 and (Internet with (LAN or WAN)).ab.	49	L2
L1	709/$.ccls.	16415	L1

END OF SEARCH HISTORY

h   e b   b cg b   e e ch

Previous Doc   Next Doc   Go to Doc#
First Hit   Fwd Refs

☐ ▓▓ Generate Collection ▓▓

L10: Entry 4 of 4   File: USPT   Sep 22, 1998

DOCUMENT-IDENTIFIER: US 5812769 A
TITLE: Method and apparatus for redirecting a user to a new location on the world wide web using relative universal resource locators

Abstract Text (1):
A method and apparatus for redirecting a user from a first location on the WWW to a second location on the WWW, wherein relative URL addressing is used during the redirecting process. A signal is received from the first location indicating that the user wishes to move from the first location on the WWW to the second location on said WWW. In response to the signal, a current URL representing an address of the first location on the WWW and a destination URL portion representative of an address of the second location on the WWW are passed to a redirecting means. The current URL includes first and second portions. A destination URL is formed with redirecting means by substituting the destination URL portion in place of the second portion in the current URL, wherein the destination URL represents a relative address of the second location on the WWW. The user is then moved from the first location on the WWW to the second location on the WWW in accordance with the destination URL formed by the redirecting means.

Current US Original Classification (1):
709/228

Current US Cross Reference Classification (3):
709/218

Current US Cross Reference Classification (4):
709/245

Previous Doc   Next Doc   Go to Doc#

h   e b   b g e e e f   e   e g

US005812769A

United States Patent [19]

Graber et al.

[11] **Patent Number:** **5,812,769**

[45] **Date of Patent:** *Sep. 22, 1998

[54] **METHOD AND APPARATUS FOR REDIRECTING A USER TO A NEW LOCATION ON THE WORLD WIDE WEB USING RELATIVE UNIVERSAL RESOURCE LOCATORS**

[75] Inventors: **Terry E. Graber**, Downingtown; **Joshua Kopelman**, Malvern; **Edwin Howell Watkeys, III**, North Wales; **Marvin I. Weinberger**, Havertown, all of Pa.

[73] Assignee: **Infonautics Corporation**, Wayne, Pa.

[*] Notice: The term of this patent shall not extend beyond the expiration date of Pat. No. 5,712,979.

[21] Appl. No.: **531,371**

[22] Filed: **Sep. 20, 1995**

[51] Int. Cl.^{6} G06F 13/14; G06F 13/42; H04L 12/46; H04L 29/02

[52] U.S. Cl. **395/200.12**; 395/200.09; 395/200.16; 395/214; 395/762

[58] Field of Search .... 395/200.06, 200.09, 395/200.11, 200.12, 200.15, 200.16, 214, 240, 244, 187.01, 741, 762, 615, 774; 340/825.34, 825.53; 380/23, 24, 25, 49; 379/118, 127, 142; 364/225.1, 225.4, 227.3, 286.5, 918.1, ·918.9, DIG. 1, DIG. 2

[56] **References Cited**

U.S. PATENT DOCUMENTS

4,726,014	2/1988	Goldman et al. .
4,885,789	12/1989	Burger et al. .
5,095,480	3/1992	Fenner .
5,159,669	10/1992	Trigg .
5,210,820	5/1993	Kenyon .
5,220,655	6/1993	Tsutsui 395/200.11
5,355,472	10/1994	Lewis .
5,359,508	10/1994	Rossides .
5,416,842	5/1995	Aziz .

(List continued on next page.)

FOREIGN PATENT DOCUMENTS

648113	11/1992	Australia .
4213393	10/1993	Australia .

OTHER PUBLICATIONS

Product Description; "Doctor HTML . . . No more bugs on your web site, Commission Program"; retrieved from internet http://www.smartbiz.com/doctor.htm, Mar. 13, 1997.

Agreement Form; "Doctor HTML Commission Program, Sign–Up Form & Agreement"; retrieved from internet http://drhtml.imagiware.com/sbss/agreement.html, Mar. 13, 1997.

Promotional Description; "Start Making Some Serious Bucks On The Internet"; retrieved from internet http://www.mymall.net/advertising/BannerBounty.htm, Jul. 28, 1997.

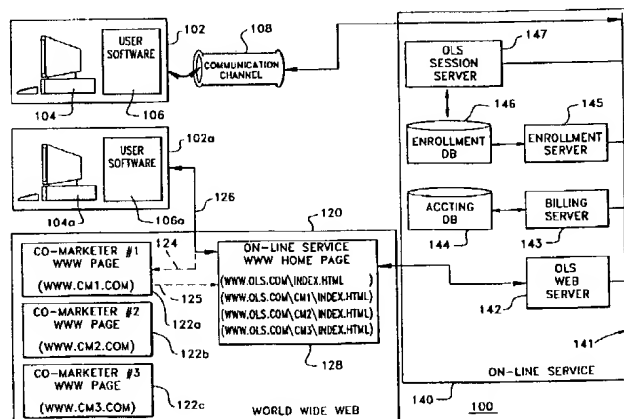(List continued on next page.)

Primary Examiner—Eric Coleman
Assistant Examiner—Mark H. Rinehart
Attorney, Agent, or Firm—Reed Smith Shaw & McClay LLP

[57] **ABSTRACT**

A method and apparatus for redirecting a user from a first location on the WWW to a second location on the WWW, wherein relative URL addressing is used during the redirecting process. A signal is received from the first location indicating that the user wishes to move from the first location on the WWW to the second location on said WWW. In response to the signal, a current URL representing an address of the first location on the WWW and a destination URL portion representative of an address of the second location on the WWW are passed to a redirecting means. The current URL includes first and second portions. A destination URL is formed with redirecting means by substituting the destination URL portion in place of the second portion in the current URL, wherein the destination URL represents a relative address of the second location on the WWW. The user is then moved from the first location on the WWW to the second location on the WWW in accordance with the destination URL formed by the redirecting means.

12 Claims, 7 Drawing Sheets

Refine Search

Search Results -

Term	Documents
REDIRECT$	0
REDIRECT	13746
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REDIRECTACK	7
REDIRECTCALL	1
REDIRECTCODON	1
REDIRECTCR	1
REDIRECTD	2
REDIRECTE	3
REDIRECTED	14942
(L11 AND (REDIRECT$ WITH SUBSTITUT$)).USPT.	9

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Search: L12

Refine Search

Recall Text   Clear   Interrupt

Search History

DATE: Tuesday, September 28, 2004   Printable Copy   Create Case

Set Name Query	Hit Count Set Name
side by side	result set
DB=USPT; PLUR=YES; OP=ADJ	
L12 L11 and (redirect$ with substitut$)	9 L12

h   e b   b cg b   e e ch

L11	L1 and (Internet same (LAN or (local adj1 area adj1 network)))	3420	L11
L10	L1 and (redirect$ and substitut$).ab.	4	L10
L9	L1 and (redirect$ with substitut$).ab.	2	L9
L8	L1 (redirect$ with substitut$)	0	L8
L7	L1 (redirect$ and substitut$).ab.	0	L7
L6	L1 (redirect$ with substitut$).ab.	0	L6
L5	L2 and redirect$	14	L5
L4	L2 and (substitut$)	6	L4
L3	L2 and (substitut$).ab.	0	L3
L2	L1 and (Internet with (LAN or WAN)).ab.	49	L2
L1	709/$.ccls.	16415	L1

END OF SEARCH HISTORY

h   e b   b cg b   e e ch

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L12: Entry 4 of 9   File: USPT   May 14, 2002

DOCUMENT-IDENTIFIER: US 6389462 B1
TITLE: Method and apparatus for transparently directing requests for web objects to
proxy caches

Brief Summary Text (5):
Direction of a request from a client to a proxy cache to determine whether a
requested copy of an object is stored in the cache can be accomplished either
transparently or non-transparently to the client. Non-transparent redirection is
accomplished through the client's browser program which is configured to send all
object requests to a designated proxy cache at a specified address. Generally, a
browser can be configured to send all of its client requests to a designated proxy
cache if the client is connected on a Local Area Network (LAN), or on an Intranet
behind a firewall, where a proxy cache associated with that LAN or Intranet is
located. When clients are served by a large Internet Service Provider (ISP),
however, it is not advantageous from the ISP's standpoint to allow its subscribers
to set their browsers to a specific proxy cache associated with the ISP. A large
ISP likely will have many proxy caches in several locations and will thus want to
maintain control over which of its several particular proxy caches a client request
is directed. Further, if a proxy cache whose address is statically set in a
client's browser becomes inoperative, all client requests will fail.

Detailed Description Text (2):
With reference to FIG. 1, a plurality of clients 101-1-101-N are connected to a
local area network (LAN) 102, such as an Ethernet. LAN 102, which, in turn, is
connected through a router 103 to a Level 4 (L4) switch 104 (proxy redirector)
which interfaces the LAN with a wide area network (WAN) 105, such as the Internet.
Although shown as two separate elements, the functionalities of router 103 and
proxy redirector 104 can in actual practice be combined in a single unit. All
requests from any of the clients connected to LAN 102 for objects stored in servers
connected to the Internet 105 traverse proxy redirector 104 onto the Internet. The
packets comprising such requests, which include the standardized packets that
establish a TCP connection, are directed to an IP destination address and port
number indicated in the IP header of each packet originating from a client source
address that includes a client IP address and port number. Similarly, responses to
such requests from an origin server connected to Internet 105 are directed via an
IP destination address that is equal to the client's IP address and port number
from which the request originated, and have as a source address the server's IP
address and port number. All such packets directed to any of the clients 101-1-101-
N from any server connected to Internet 105 pass through proxy redirector 104.

Detailed Description Text (3):
When any of the clients connected to LAN 102, such as client 101-1, makes a request
through a browser for an object by specifying a logical URL, a domain name server
(DNS) 106 connected locally or on Internet 105, as shown, is accessed to perform a
database look-up based on that logical name. An associated IP address is then
returned to the browser. The IP address returned to the browser is the IP address
of a particular origin server which contains the 5 object requested through the
logical URL. Since a logical name may in fact be associated with a plurality of
essentially equivalent origin servers, such as servers 107 and 109, the particular

IP address returned to the client browser chosen by DNS 106 may be determined in a round-robin manner. When DNS 106 selects an origin server corresponding to the logical URL, the IP address of the selected origin server, such as, for example, the IP address of origin server 107, is returned to the browser in the requesting client 101-1. That IP address then serves as the IP address to which packets directed to the origin server from the client are directed. Conventionally, http requests are usually directed to port 80 of an origin server.

Detailed Description Text (6):
In the embodiment shown in FIG. 1, a proxy cache 110-1 is illustratively shown connected to a LAN 111, which is connected to LAN 102 through a router 112. Another proxy cache 115 is shown connected on a different LAN 116 through router 103. Other proxy caches can be located anywhere on LANs 102, 111, or 116, on another LAN connected to the Internet 105 such as proxy cache 117. Proxy redirector 104 selects one of the available proxy caches to which to forward client requests based on a metric such as least-loaded or round-robin, based on IP header information such as the origin server IP address. With respect to the latter, all objects from a specific origin server will be served by a specific proxy.

Detailed Description Text (29):
As described, the proxy cache returns requested objects to the address from which a request originated as indicated by the saddr and sport parameters in the IP header information, which is the address of the proxy redirector 104 when the proxy cache is not connected on the network so that all responses do not automatically pass through the proxy redirector. The interactions between the requesting client and the proxy cache are transparent to both the client and the proxy cache, since the client does not "know" that its request is being redirected to the proxy by the proxy redirector, and the proxy cache, when receiving a GET request with an absolute URL does not know that that absolute URL is not being formulated by the client's browser operating in a non-transparent mode. Advantageously, the proxy cache requires no software modifications and standard proxy caches, connected anywhere on the network can be used in conjunction with the proxy redirector. If, however, the proxy is modified, using a programmable network element as previously described, for example, the requested object retrieved by the proxy from its own cache or received from an origin server, can be sent directly back to the client, thereby obviating the need to send such packets back to the proxy redirector for address translations and redirection to the client. By performing only a half-NAT at the proxy redirector and leaving the client's saddr and sport as the source IP address and port number in the header of the SYN packet, GET request packet(s), and other packets forwarded by proxy redirector 104 from the client, the proxy cache can return packets responsive to the request directly to the client by substituting the origin server's IP address and port number as the source address for its own address. If the proxy redirector performs a full NAT and PAT, then another mechanism must be incorporated to provide the client address to the proxy cache, such as incorporating the client address information as part of an appendix to the absolute address in the modified GET request and stripping the appended client address information at the proxy before determining whether the requested object is stored in the cache or whether a connection to the origin server need be made. Advantageously, by sending the packets from the proxy cache directly back to the client, the delay encountered by transmitting such packets back to the proxy redirector for address translation and redirection is eliminated. Disadvantageously, the proxy cache must be modified to perform these functions, precluding use of standard available proxy caches.

Current US Original Classification (1):
709/218

Current US Cross Reference Classification (2):
709/201

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Current US Cross Reference Classification (3):
709/203

Current US Cross Reference Classification (4):
709/219

Current US Cross Reference Classification (5):
709/229

Current US Cross Reference Classification (6):
709/231

Current US Cross Reference Classification (7):
709/239

h   e b   b g ee e f   e   e g

(12) **United States Patent**
Cohen et al.

(10) Patent No.: **US 6,389,462 B1**
(45) Date of Patent: **May 14, 2002**

(54) **METHOD AND APPARATUS FOR TRANSPARENTLY DIRECTING REQUESTS FOR WEB OBJECTS TO PROXY CACHES**

(75) Inventors: **Ariel Cohen**, Berkeley Heights; **Sampath Rangarajan**, Bridgewater; **Navjot Singh**, Morristown, all of NJ (US)

(73) Assignee: **Lucent Technologies Inc.**, Murray Hill, NJ (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/212,980**

(22) Filed: **Dec. 16, 1998**

(51) Int. Cl.[7] **G06F 15/16**
(52) U.S. Cl. **709/218; 709/201; 709/203; 709/219; 709/229; 709/231; 709/239; 707/10; 707/501**
(58) Field of Search 709/218, 203, 709/219, 201, 224, 229, 239, 231; 707/10, 501; 713/201

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,774,660 A	*	6/1998	Brendel et al.	709/201
5,838,916 A	*	11/1998	Domenikos et al.	709/219
5,864,852 A	*	1/1999	Luotonen	707/10
5,905,872 A	*	5/1999	DeSimone et al.	709/245
5,941,954 A	*	8/1999	Kalajan	709/239

(List continued on next page.)

OTHER PUBLICATIONS

ACEdirector 2 Data Sheet, ACElerate Layer 4 Services, Server Switching Services, http;//www.alteon.com.
"Deploying Transparent Caching With Inktomi's Traffic Server", http://www.inktomi.com.
Danzig, Peter, Network Appliance, Inc., "NetCache Architecture and Deployment", http://www.network application.com.

(List continued on next page.)

(57) **ABSTRACT**

In order to transparently redirect an HTTP connection request that is directed to an origin server (107) to a proxy cache (110-1), a proxy redirector (104) translates the destination address of packets directed to the origin server to the address of the proxy. During a handshaking procedure, a TCP connection is transparently established between the client (110-1) and the proxy cache. When the client transmits a GET request to what it thinks is the origin server, which request specifies the complete address of an object at that origin server that it wants a copy of, the proxy redirector modifies the complete address specified in that GET request before it is sent to the proxy cache. Specifically, the IP address of the origin server found in the destination field in the IP header of the one or more packets from the client containing the GET request is added by the proxy redirector as a prefix to the complete URL in the GET request to form an absolute URL. The proxy cache determines from that absolute URL whether it has the requested object stored in its cache. If it does, it sends the object back to the proxy redirector, which masquerades those packets as coming from the origin server by translating their destination address to the address of the client and their source address to that of the origin server. If the proxy does not have the requested object, a separate TCP connection is established between the proxy and the origin server from where the object is retrieved and then forwarded over the TCP connection between the client and the proxy. In order to account for the additional number of bytes in the GET request, an acknowledgement sequence number in packets returned from the proxy that logically follow receipt of the GET request are decremented by that number by the proxy redirector before being forwarded to the client. Similarly, a sequence number in packets transmitted by the client subsequent to the GET request are incremented by that number before being forwarded by the proxy redirector to the proxy cache.

55 Claims, 4 Drawing Sheets